

A REVISION OF THE GENUS *OXYGONUS* LECONTE WITH A DESCRIPTION OF ONE NEW SPECIES (COLEOPTERA: ELATERIDAE) (TRIBE: AGRIOTINI)

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INTRODUCTION

Elater obesus—now known as *Oxygonus obesus* (Say)—was described by Say in 1823, however, later this species was transferred to the genus *Oxygonus* and designated as the genotype. LeConte (1863) erected the genus *Oxygonus*. Subsequently, Horn (1871) described *Oxygonus ater* and Schaeffer (1917) described *Oxygonus montanus*. Say's (1823) type of *Elater obesus* is probably lost. I was able to confirm the identity of this species by studying Say's original description and LeConte's review of Say's work.

I have studied Horn's type of *Oxygonus ater* in the Academy of Natural Sciences of Philadelphia, Philadelphia, Pennsylvania, and Schaeffer's type of *Oxygonus montanus* in the United States National Museum, Washington, District of Columbia, thus confirming the identity of these species and also substantiating that these species are congeneric.

Oxygonus is placed in the tribe Agriotini; this is a new assignment for the genus. I am using as the authority for this new assignment Arnett, 1963.

The purpose of the present study is to give a detailed recharacterization of the genus, to redescribe the members of the genus, to present additional data on geographical distribution, and to describe a new species.

During the course of this revision a number of specimens have been examined, including the type material and the general collections of the United States National Museum, Academy of Natural Sciences of Philadelphia, the Museum of Comparative Zoology, Cambridge, Massachusetts, and the Arnett Collection at the Catholic University of America, Washington, District of Columbia.

My sincere thanks to the following individuals for the loan of specimens: Mr. Hugh B. Leech, California Academy of Sciences; Dr. Jerry A. Powell and Dr. E. Gorton Linsley, University of California; Dr. Rupert Wenzel and Mr. Henry Dybas, Chicago Natural History Museum; Dr. Henry Dietrich, Cornell University; Miss Marjorie Statham, The American Museum of Natural History; and Dr. E. C. Becker, Canadian Department of Entomology.

I am also indebted to Mr. James A. G. Rehn and Mr. Harold J. Grant of the Academy of Natural Sciences of Philadelphia for permitting me to study the Horn Collection, and to Dr. P. J. Darlington of the Museum of Comparative Zoology for allowing me to study the LeConte Collection.

I am particularly grateful to Mrs. Barbara Thompson Townsend for her invaluable assistance during the preparation of the illustrations for this paper.

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Genus *Oxygonus* LeConte, 1863

Oxygonus LeConte, 1863, Smithsonian Misc. Coll. 6(140):48.

Type-species.—*Elater obesus* Say, 1823. (Monobasic.)

Description of genus.—Form small, elongate, moderately convex; entire beetle black or only pronotum black with elytra light brown to dark reddish brown. Head directed obliquely in front, prosternal lobe long, tarsal claws with large tooth at base.

Head flat; eyes prominent, moderately protruding; antennae slightly to moderately serrate, reaching three-fourths of pronotum to entire length of pronotum; mandibles large, simple, or moderately cleft near apex.

Median length of pronotum shorter or subequal to median width, lateral margins weakly explanate to strongly explanate, slightly to strongly converging anteriorly; posterior angles slightly divergent to moderately divergent, not carinate to distinctly carinate. Pronotal punctures small and deep; prosternum convex, prosternal lobe long, sparsely to densely clothed with small to medium shiny recurvate pubescence, prosternal sutures double.

Sides of mesosternal cavity stout, slightly diverging anteriorly and slightly declivous. Metacoxal plates widest on inner margin gradually narrowing to outer lateral margin, posterior margin entire. Tarsal claws with basal tooth. Elytra elongate, striated, with punctate striae, intervals flat to moderately raised. Lateral lobes of male genitalia expanded at apex forming apical hooks, basal piece with U-shaped or V-shaped non-sclerotized area.

Discussion.—The taxonomic criteria listed below coupled with the individual descriptions of this paper will facilitate rapid identification of the group and will also serve to separate and recognize the different species. The most important taxonomic criteria used to separate *Oxygonus* from other genera of Elaterids are (1) tarsal claws with basal tooth, (2) long prosternal lobe, (3) head slightly depressed anteriorly, and (4) mouth parts obliquely directed forward. Generally the beetles of this group are small in comparison with some of the other genera of Elaterids.

KEY TO THE SPECIES OF OXYGONUS

- 1. Lateral margin of elytra slightly explanate, posterior angles of pronotum moderately to distinctly carinate ----- 2
- Lateral margin of elytra markedly explanate, posterior angles of pronotum slightly carinate or not carinate ----- 3
- 2. Entire beetle black -----ATER Horn
- Pronotum dark reddish brown, elytra reddish brown -----ARNETTI n. sp.
- 3. Lateral margin of elytra strongly explanate, apex strongly acuminate in males, in females acute; posterior angles of pronotum not carinate dorsally; fifth visible sternite in males drawn out into a tongue-like structure, apex deflexed, in females acutely rounded -----OBESUS (Say)
- Lateral margin of elytra prominently explanate, conjointly rounded at apex, posterior angles of pronotum slightly carinate dorsally. Fifth visible sternite more broadly rounded at apex, apex not deflexed -----MONTANUS Schaeffer

Oxygonus ater Horn

Oxygonus ater, Horn, 1871. Trans. American Ent. Soc. 3:318. (Location of type: Academy of Natural Sciences of Philadelphia, Philadelphia, Penn. Type no. 3374).

Type locality: Amador Valley, California.

This species differs from other species of *Oxygonus* in its uniformly black color and in having posterior angles of pronotum distinctly carinate with carina ending abruptly before reaching vertex of angle.

Description of species.—Length 5-7.2 mm.; width 1.5-2 mm. Body elongate, moderately convex. General color black; pronotum more shiny than elytra. Legs slightly lighter than other parts of body. Pubescence greyish, recurvate, posteriorly directed, thicker on head than elytra; dorsal surface deeply, densely umbilicately punctate.

General ventral surface deeply, sparsely punctate. Antennae (Fig. 4) moderately serrate, extending three-fourths the length of the pronotum, second segment shorter than third, third shorter than fourth, second plus third longer than fourth, fourth through tenth similar, eleventh tapering and rounded apically, longer than tenth. Mandibles large, cleft near apex, apices bluntly rounded.

Pronotum (Fig. 4) convex, median length subequal to median width, lateral margins slightly sinuate anterior to posterior angles, very slightly converging anteriorly; posterior angles distinctly carinate, carina ends abruptly before reaching vertex of angle; posterior border sinuate, biculate medially and adjacent to each posterior angle. Pronotal epipleura deeply, umbilicately punctate, sparsely clothed with fine short setae, posterior border with two emarginations, a lateral broad, shallow one and a narrow deep mesal one, with slight sinuation between the two emarginations. Mesepisternum partially punctate.

Scutellum (Fig. 4) truncate at base, lateral margin very slightly sinuate on basal third, slightly narrowing apically, apex moderately rounded, densely clothed with moderate length setae. Elytra (Fig. 4) elongate, wider than pronotum, length over twice the width, widest at middle, moderately tapering to apex, apex conjointly rounded; slightly explanate, coarsely deeply punctate; deeply striated, intervals moderately raised, triseriately punctured, punctures moderate giving an overall transversely wrinkled appearance.

Abdomen moderately convex, fifth visible sternite rounded at apex.

Male genitalia (Fig. 5) with median lobe gradually narrowing apically, apex bluntly rounded; lateral lobes stout, shoulders with open hooks; apex broadly acute with very small V-shaped non-sclerotized area, most of basal piece sclerotized.

Distribution.—(Fig. 10) This species is known from California and Oregon.

Specimens examined (44). UNITED STATES: CALIFORNIA: 8, *Humboldt Co.*: Fort Seward, 1. *Kern Co.*: Frazier Park, 1. *Madera Co.*: Ahwahnee, 2. *Mariposa Co.*: 4. *Santa Cruz Co.*: Ben Lomond, 2. *Siskiyou Co.*: 1. *Sonoma Co.*: Mill Cr. W. of Healdsburg, 1. *Tulare Co.*: Colony Mill, 1; Kaweah, 4. *Trinity Co.*: Carrville, 3. *Tuolumne Co.*: Cal. Lyons Dam, 2; nr. Longbarn, 3. *Ventura Co.*: 2. OREGON: *Benton Co.*: Corvallis, 5. *Washington Co.*: Forest Grove, 3.

Oxygonus arnetti Roache, NEW SPECIES

The dark reddish brown pronotum, the reddish brown elytra, and the posterior angles of pronotum moderately carinate with carina becoming evanescent as it approaches the vertex of the angle are sufficient characters to identify this species.

Holotype.—California, Humboldt Co., F. W. Nunenmacher. (Deposited in the California Academy of Sciences, San Francisco, Calif.)

Description of Holotype:—Male. Length, 4.1 mm.; width 1.4 mm. Body elongate, moderately convex. Head, pronotum, ventral surface, and terminal segments of antennae dark reddish brown, mandibles, legs, and elytra reddish brown. Pronotum more shiny than elytra. Pronotum and ventral surface moderately clothed and elytra densely clothed with silky pubescence. Dorsal surface deeply, densely, umbilicately punctate; ventral surface deeply, moderately punctate.

Antennae (Fig. 6) moderately serrate, extending the length of the pronotum, second and third segments similar in shape, third shorter than fourth, fourth slightly

subserrate, fifth through tenth similar, eleventh tapering and rounded apically, longer than tenth. Mandibles large, cleft near apex, dorsal lobe shorter than ventral lobe, apices acute.

Pronotum (Fig. 6) convex, median length subequal to median width, lateral margins slightly sinuate at base of posterior angles, very slightly converging anteriorly; posterior angles moderately carinate, carina becomes evanescent as it approaches vertex of angle; moderately punctate, interstices approximately two and one-half times as large as punctures, moderately clothed with fine, golden, silky pubescence.

Scutellum truncate at base, lateral margins very slightly sinuate on basal third, slightly narrowing apically, apex moderately rounded, moderately clothed with moderate length setae.

Elytra (Fig. 6) elongate, wider than pronotum, length twice the width, widest at apical third, sides parallel on basal two-thirds, moderately tapering at apex, apex conjointly rounded; slightly explanate, coarsely deeply punctate; deeply striated, intervals slightly raised.

Abdomen moderately convex, fifth visible sternite rounded at apex, and very densely umbilicately punctate.

Male genitalia (Fig. 7) with shoulders of lateral lobes having very sharp apical hooks; lateral lobes moderately stout below apical expansion. Basal piece has small unsclerotized V-shaped area with indentation on basal border.

Distribution.—(Fig. 10) This species is known from southeastern Oregon and northwestern California.

Specimens examined 33—All designated as paratypes—UNITED STATES: CALIFORNIA: *Humboldt Co.*: 25; Green Point, 3. *Siskiyou Co.*: 1. *Trinity Co.*: Carrville, 1. OREGON: *Jackson Co.*: Medford, 3. Twenty-six of the paratypes are deposited in the California Academy of Science, San Francisco, Calif., and 7 in the Canadian National Collection, Ottawa, Ontario.

This species is named for my major professor and good friend Dr. Ross H. Arnett, Jr.



FIGURE 10—Distribution of *Oxygonus* spp.

Oxygonus obesus (Say, 1823)

Elater obesus Say, 1823, Journ. Acad. Nat. Sci. Philadelphia 3:168.

Type locality: Missouri.

Elater acutipennis Randall, 1838, Boston Jour. Nat. Hist. 2:36. (Synonymy by LeConte 1863:48.)

Lateral margins of elytra strongly explanate, apex acute to strongly acuminate, posterior angles of pronotum not carinate. It differs from *ater* and *montanus* in its larger size and strongly explanated elytra.

Description of species: Length 10-11 mm.; width 4-4.5 mm. Body elongate, moderately convex; elytra, mandibles, antennae, and legs reddish brown; ventral surface darker reddish brown, pronotum black. Clothed with yellowish pubescence, head and thorax more densely clothed than elytra.

Head moderately depressed, densely umbilicately punctate; eyes vertical, obovate, protruding slightly; antennae (Fig. 2) slightly serrate, as long as pronotum in males, four-fifths as long as pronotum in females, second segment shorter than third, third shorter than fourth, fourth shorter than second and third combined, fourth through tenth similar, eleventh longer than tenth and apically rounded. Mandibles large, cleft near apex, dorsal lobe shorter than ventral lobe, apices acute.

Median length of pronotum (Fig. 2) shorter than median width, posterior angles slightly divergent, not carinate, lateral margins sinuate just anterior to posterior angles, continuing anteriorly borders become rounded and converging strongly. Pronotum convex, very faint median longitudinal line present, with small deep punctures, interstices approximately same size as punctures, surface smooth and shiny. Densely clothed with whitish-silky pubescence, directed in several directions. Posterior border sinuate, bisulcate, with narrow sulcus at base of posterior angles. Pronotal epipleura densely punctate, densely clothed with moderately long silky pubescence, setae arising from punctures anteriolaterally directed; posterior border moderately oblique, broadly sinuate. Mesepisternum densely punctate, densely clothed with long setae.

Scutellum (Fig. 2) truncate at base, moderately sinuate on basal third, broadening apically, apex very broadly rounded, widest on apical third, thickly clothed with moderately long setae, radiating concentrically. Elytra (Fig. 2) elongate, wider than pronotum, length slightly less than twice the width, widest at middle gradually tapering to apex conjointly acutely rounded in females, elongate, acuminate in males; moderately punctate, pubescence moderate in length and density.

Fifth abdominal sternite in males modified into a tongue-like structure deflected at apex, in females acutely rounded at apex, subapically slightly sinuate; abdomen moderately convex.

In male genitalia (Fig. 3) median lobe gradually narrowing apically; ventral surface attenuated, compressed, rounded at apex giving effect of keel-like subapical dorsal surface, broader than ventral surface and fits along inner apical expansion of lateral lobes; shoulder of lateral lobes with short apical hooks, apex of lateral lobes acute; basal piece with V-shaped non-sclerotized area; chitinized rods small.

Distribution.—(Fig. 10) This species is known from Canada through the northern United States from New England westward to North Dakota.

Specimens examined (129). CANADA 2: ONTARIO: Belleville, 1; Point Pelee, 1; Ridgeway, 2; Toronto, 1; QUEBEC: Covey Hill, 1. UNITED STATES: MAINE: 1. NEW HAMPSHIRE: 5. *Cheshire Co.*: Jaffrey, 1; *Grafton Co.*: Rumney, 4. VERMONT: 1. MASSACHUSETTS: *Berkshire Co.*: South Field, 4; *Essex Co.*: Lawrence, 1; Salisbury, 1. *Hampshire Co.*: Amherst, 1. *Middlesex Co.*: Cambridge, 1; Framingham, 1; Jamaica Plains, 1; Wellesley, 3. *Norfolk Co.*: Dover, 5. CONNECTICUT: *Windham Co.*: Pomfret, 1. NEW YORK: 5. *Chemung Co.*: Elmira, 1. *Cortland Co.*: Chicago Boggs, 1. *Dutchess Co.*: Poughkeepsie, 1. *Erie Co.*: Buffalo, 3; Zoar Valley, 1. *Essex Co.*: Crown Point, 5. *Orleans Co.*: Shelby, 2. *Putnam*

Co.: Putnam 1. *Tompkins Co.*: Ithaca, 13; McLean Bogs Res., 5. *Washington Co.*: White Hall, 2. PENNSYLVANIA: *Dauphin Co.*: Hummels-town, 1. *Westmoreland Co.*: Jeanette, 1. INDIANA: *Lake Co.*: Hessville, 5. ILLINOIS: *Cook Co.*: 6; Chicago, 1; Palos Park, 1; Riverside, 2; Willow Springs, 10. *DuPage Co.*: Glen Ellyn, 1. *Lake Co.*: Fort Sheridan, 2. WISCONSIN: 6. *Dodge Co.*: Beaver Dam, 3. IOWA: 1. MINNESOTA: 4. *Hennepin Co.*: Minneapolis, 2; Lake Minnetonka, 3. NORTH DAKOTA: *Cass Co.*: Fargo, 1.

Oxygonus montanus Schaeffer

Oxygonus montanus Schaeffer, 1917, Bull. Brooklyn Ent. Soc. 12:43.
(Location of type: United States National Museum, Washington, D.C. Type no. 42628.)

Type locality: Catskill Mountains, Ulster County, New York.

Lateral margin of elytra prominently explanate, conjointly rounded at apex, posterior angles of pronotum slightly carinate. This species differs from *obesus* in having a darker color and being smaller in size.

Description of species: Length 8-10.5 mm., width 2.75-3.25 mm. Body elongate, females more convex than males. Elytra light brown to dark reddish brown; first segment of antennae and legs lighter, pronotum black; general ventral surface darker than dorsal. Clothed with yellowish pubescence, head and thorax more densely clothed than elytra.

Head densely umbilicately punctate. Antennae (Fig. 8) slightly serrate, slightly shorter than pronotum, second segment shorter than third, third subserrate subequal to fourth, fourth through tenth similar, eleventh rounded at apex, longer than tenth. Mandibles large, cleft near apex, dorsal lobe shorter than ventral lobe, apices acute.

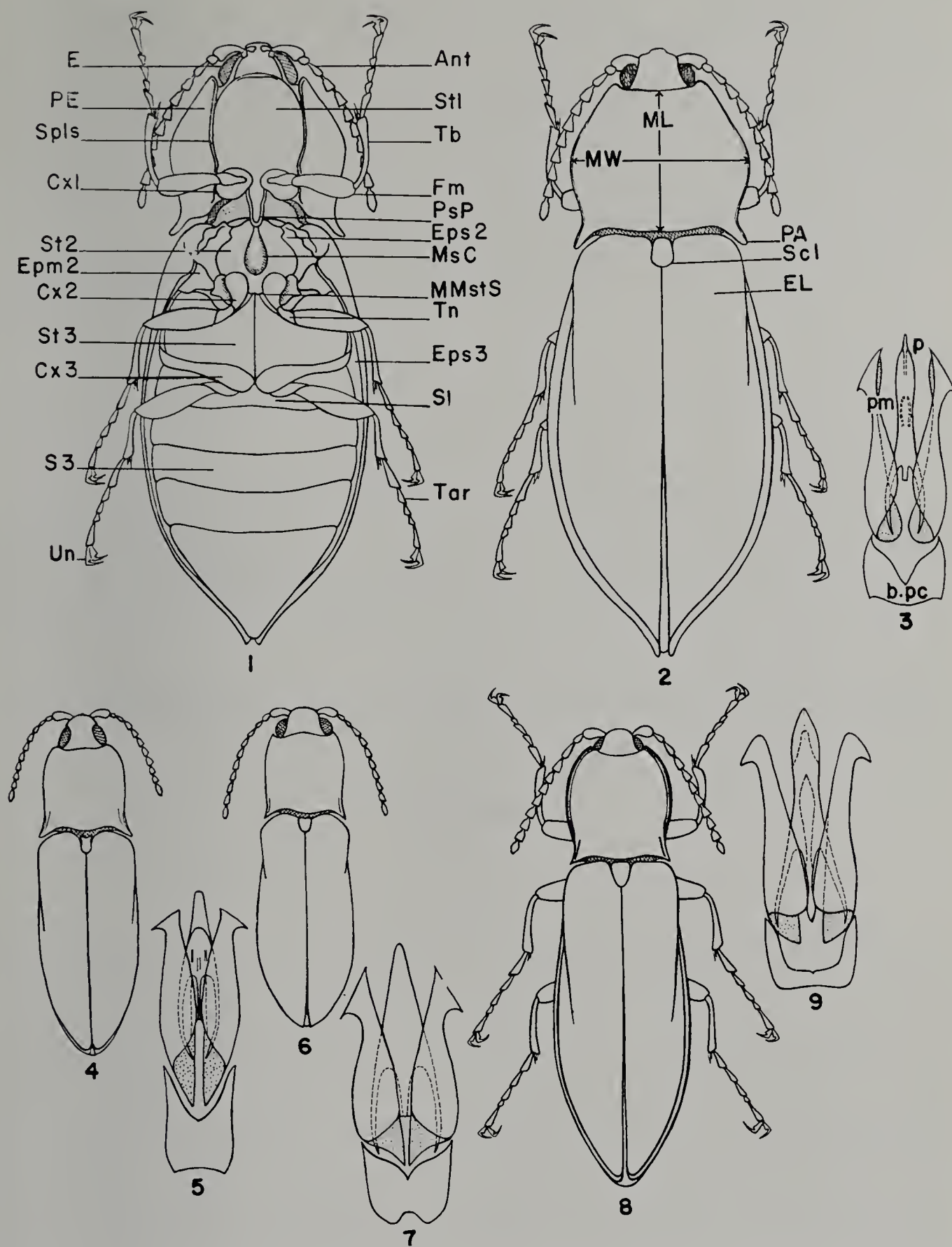
Median width of pronotum (Fig. 8) slightly longer than median length, widest at posterior angles; posterior angles slightly divergent, feebly carinate; lateral margins slightly sinuate anterior to posterior angles moderately converging anteriorly, strongly explanate. Pronotum convex, clothed with moderate length silky pubescence. Posterior border sinuate, medially from each posterior angle four-fifths of the distance to median line of the head is a rounded projection and a sulcus. Pronotal epipleura densely punctate, sparsely clothed with moderately long pubescence, setae arising from punctures laterally directed; posterior border slightly oblique, sinuate, slight notch on outer third, next to procoxal cavity. Mesepisternum impunctate except in concavity immediately behind anterior margin.

Scutellum (Fig. 8) truncate at base, slightly sinuate on basal third, moderately narrowing apically, apex acutely rounded, broadest at base, thickly clothed with medium hairs. Elytra (Fig. 8) elongate, wider than pronotum, length more than twice the width, widest at middle, gradually tapering to apex, apex conjointly rounded; each elytron with nine distinct punctate striae, intervals flat, over four-times wider than striae, clothed with fine pubescence.

Fifth abdominal sternite moderately rounded at apex, abdomen very convex in females, in males converging slightly. Median lobe of male genitalia (Fig. 9) slightly narrowing apically, apex rounded, slightly depressed. Shoulders of lateral lobes also rounded; basal piece with broad U-shaped non-sclerotized area. Chitinized rods large.

Distribution.—(Fig. 10). This species is known from eastern New York, northern Pennsylvania and southern Quebec.

Specimens examined (24). CANADA: QUEBEC: Brome, 1; Gatincan Park, 1. UNITED STATES: NEW YORK: 4. *Essex Co.*: Heart Lake, 1. *Ulster Co.*: Slide Mountain, 15. PENNSYLVANIA: *Sullivan Co.*: Laporte, 2.



FIGURES 1-9, *Oxygonus* spp. 1—Ventral view of *O. obesus*. 2—Dorsal view of *O. obesus*. 3—Male genitalia, dorsal view, *O. obesus*. 4—Dorsal view of *O. ater*. 5—Male genitalia, dorsal view, *O. ater*. 6—Dorsal view of *O. arnetti*, new species. 7—Male genitalia of *O. arnetti*, new species. 8—Dorsal view of *O. montanus*. 9—Male genitalia, dorsal view, *O. montanus*.

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CURRENT RESEARCH PROGRAMS

These announcements of research underway on beetles are not meant to be requests for specimens or information unless stated to the contrary; a letter to the researcher will determine whether or not specimens or information are wanted. All research workers are invited to send notices of research in progress to the Editor.

AGLYCYDERIDAE: Study of Aglycyderidae (=Proterhininae) of the world. By Elwood C. Zimmerman, Peterborough, New Hampshire.

CURCULIONIDAE: Revision of *Curculio* (formerly *Balaninus*). By Kenneth E. Weisman, 4 Balmoral Ave., Bartonville, Illinois.

CURCULIONIDAE: Study of Curculionidae of Somoa, Fiji, southeastern Polynesia, Melanesia, and Micronesia. By Elwood C. Zimmerman, Peterborough, New Hampshire.

LAMPYRIDAE: Flash communication in several species of *Pyroactomena* and *Photinus*. By James E. Lloyd, Cornell Univ., Ithaca, N. Y.

MELANDRYIDAE: Study of Melandryidae of Québec. By Br. Firmin Laliberté, Académie de Québec, 2410 Chemin Ste-Foy, Québec 10e, Québec.

PSELAPHIDAE: Monographic study of Pselaphidae of the Antilles. By Orlando Park, Dept. of Biological Sciences, Northwestern Univ., Evanston, Illinois.